

# MALAYSIA'S PERFORMANCE IN THE GLOBAL INNOVATION INDEX 2014



## TOPLINE REPORT

### THE GLOBAL INNOVATION INDEX (GII) 2014: *The Human Factor in Innovation*

#### 1. INTRODUCTION

1.1. **The Global Innovation Index 2014** (GII 2014) ranks 143 countries across the world in terms of their innovation capabilities. This 7<sup>th</sup> edition is co-published by Cornell University, INSEAD and the World Intellectual Property Organisation (WIPO an agency of the United Nations, UN). It was released on Friday, 18<sup>th</sup> July 2014 in Sydney, Australia.

1.2. The theme of this year's GII is the 'Human Factor in Innovation' which explores the role of human capital in the innovation process and underlining the growing interest that firms and governments have shown in identifying and energising creative individuals and teams.

#### 2. MALAYSIA'S PERFORMANCE

2.1. Overall, Malaysia ranks 33<sup>rd</sup> (2013:32<sup>nd</sup>) out of 143 countries but second among upper-middle-income economies in Asia. In the table below is Malaysia's performance based on the sub-index.

	2014 (n=143)		2013 (n=142)	
	Rank	Score	Rank	Score
Overall	33	45.60	32	46.90
Output sub-index	35	38.74	30	42.1
Input sub-index	30	52.46	32	46.9
Efficiency ratio	72	0.74	52	0.81

2.2. Under the Innovation Input sub-index Malaysia showed an improvement in the pillar of Human Capital & Research which ranked 35<sup>th</sup> (2013: 40<sup>th</sup>) while Market Sophistication ranked 17<sup>th</sup> (2013: 23<sup>rd</sup>). Malaysia recorded a decline in the pillars

of Institutions ranked 50<sup>th</sup> (2013:49<sup>th</sup>), Infrastructure ranked 35<sup>th</sup> (2013:33<sup>rd</sup>) and Business Sophistication ranked 29<sup>th</sup> (2013:27<sup>th</sup>).

- 2.3. For Innovation Output sub-index, both Knowledge & Technology Outputs and Creative Outputs pillars ranked 39<sup>th</sup> and recording a decline from previous year where it ranked 24<sup>th</sup> and 38<sup>th</sup>, respectively. The details are as shown in Table 1. Details of Malaysia's performance in Appendix 1.

**Table 1: Malaysia in the Global Innovation Index 2014 (GII 2014)**

	GII 2014 (n=143)		GII 2013 (n=142)		Top Performer
	Rank	Score	Rank	Score	
<b>Global Innovation Index</b>	<b>33</b>	<b>45.6</b>	<b>32</b>	<b>46.9</b>	<b>Switzerland</b>
<b>Innovation Efficiency Ratio</b>	<b>72</b>	<b>0.74</b>	<b>52</b>	<b>0.8</b>	<b>Moldova, Republic of</b>
<b>Innovation Input Sub-Index</b>	<b>30</b>	<b>52.5</b>	<b>32</b>	<b>51.7</b>	<b>Singapore</b>
1 <sup>st</sup> pillar: Institutions	50	68.2	49	69	Finland
2 <sup>nd</sup> pillar: Human Capital & Research	35	41.6	40	39.7	Finland
3 <sup>rd</sup> pillar: Infrastructure	35	45.7	33	43.1	Hong Kong
4 <sup>th</sup> pillar: Market Sophistication	17	63.9	23	61	USA
5 <sup>th</sup> pillar: Business Sophistication	29	42.9	27	45.9	Singapore
<b>Innovation Output Sub-Index</b>	<b>35</b>	<b>38.7</b>	<b>30</b>	<b>42.1</b>	<b>Switzerland</b>
6 <sup>th</sup> pillar: Knowledge and Technology Outputs	39	35.5	24	38.7	Switzerland
7 <sup>th</sup> pillar: Creative Outputs	39	42.0	38	45.6	Iceland

- 2.4. At the indicator level in which Malaysia is ranked top 10 are as follows:

- a) Graduates in science & engineering ranks 6<sup>th</sup>,
- b) Ease of getting credit ranks 1<sup>st</sup>,
- c) Ease of protecting investors ranks 4<sup>th</sup>,
- d) Market capitalization ranks 4<sup>th</sup>,
- e) High-tech imports less re-imports ranks 1<sup>st</sup>,
- f) High-tech exports less re-exports ranks 2<sup>nd</sup>, and
- g) Creative goods exports ranks 4<sup>th</sup>.

- 2.5. The indicators that Malaysia need to focus on includes:

- a) Political stability ranks 72<sup>nd</sup>,

- b) Press freedom ranks 119<sup>th</sup>,
- c) Cost of redundancy dismissal ranks 110<sup>th</sup>,
- d) School life expectancy ranks 76<sup>th</sup>,
- e) GDP/unit of energy use ranks 77<sup>th</sup>,
- f) Applied tariff rate ranks 71<sup>st</sup>,
- g) GERD financed by abroad ranks 90<sup>th</sup>,
- h) Communications, computer & info services expenditure ranks 80<sup>th</sup>,
- i) Domestic resident trademark applications ranks 75<sup>th</sup>,
- j) Printing & publishing manufactures ranks 76<sup>th</sup>.

2.6. This year, a total of 143 countries are involved with one new entrant; Sudan. The top ten countries in the GII 2014 are dominated by developed economies. Switzerland, United Kingdom and Sweden are the top 3 countries with scores of 64.78, 62.37 and 62.29 respectively; followed by Finland, United States of America, Netherlands, Singapore, Denmark, Luxembourg and Hong Kong (China). The top ten countries and Malaysia's position is shown in Table 2. Overall Global Innovation Index Rankings as in Appendix 2.

**Table 2: The GII 2014 Rankings: Malaysia and Top Ten Performers**

Country / Economy	GII 2014		GII 2013	
	Rank	Score	Rank	Score
Switzerland	1	64.78	1	66.59
United Kingdom	2	62.37	3	61.25
Sweden	3	62.29	2	61.36
Finland	4	60.67	6	59.51
Netherlands	5	60.59	4	61.14
United States of America	6	60.09	5	60.31
Singapore	7	59.24	8	59.41
Denmark	8	57.52	9	58.34
Luxembourg	9	56.86	12	56.57
Hong Kong (China)	10	56.82	7	59.43
<b>Malaysia</b>	<b>33</b>	<b>45.60</b>	<b>32</b>	<b>46.92</b>

2.7. In the Asia Pacific region, Malaysia declined one position to 8<sup>th</sup> with a score of 45.60 among 22 Asia-Pacific countries. China (7<sup>th</sup>) overtook Malaysia with a score of 46.57 and Singapore reclaims its 1<sup>st</sup> position from Hong Kong (2<sup>nd</sup>) while

New Zealand declined the most to 5<sup>th</sup> position. The details are as shown in Table 3.

**Table 3: Asia Pacific Countries in the GII 2014**

Country	GII 2014		GII 2013	
	Rank	Score	Rank	Score
Singapore	1	59.24	2	59.41
Hong Kong	2	56.82	1	59.43
Korea, Rep.	3	55.27	4	53.31
Australia	4	55.01	5	53.07
New Zealand	5	54.52	3	54.46
Japan	6	52.41	6	52.23
China	7	46.57	8	44.66
<b>Malaysia</b>	<b>8</b>	<b>45.60</b>	<b>7</b>	<b>46.92</b>
Thailand	9	39.28	9	37.63
Mongolia	10	37.52	11	35.77
Vietnam	11	34.89	13	34.82
India	12	33.70	10	36.17
Indonesia	13	31.81	14	31.95
Brunei	14	31.67	12	35.53
Fiji	15	30.39	16	30.46
Philippines	16	29.87	15	31.18
Sri Lanka	17	28.98	17	30.45
Cambodia	18	28.66	18	28.07
Kyrgyzstan	19	27.75	19	26.98
Bangladesh	20	24.35	21	24.52
Pakistan	21	24.00	22	23.33
Nepal	22	23.79	20	24.97

2.8. Among ASEAN countries, Malaysia maintains its rank at 2<sup>nd</sup> position ahead of six other countries namely Thailand, Vietnam, Indonesia, Brunei, Philippines, and Cambodia as shown in Table 4.

**Table 4: ASEAN Countries in GII 2014**

Country	GII 2014		GII 2013	
	Rank	Score	Rank	Score
Singapore	1	59.24	1	59.41
<b>Malaysia</b>	<b>2</b>	<b>45.60</b>	<b>2</b>	<b>46.92</b>
Thailand	3	39.28	3	37.63
Vietnam	4	34.89	5	34.82
Indonesia	5	31.81	6	31.95
Brunei	6	31.67	4	35.53
Philippines	7	29.87	7	31.18
Cambodia	8	28.66	8	28.07

### **3. HIGHLIGHTS OF THE REPORT**

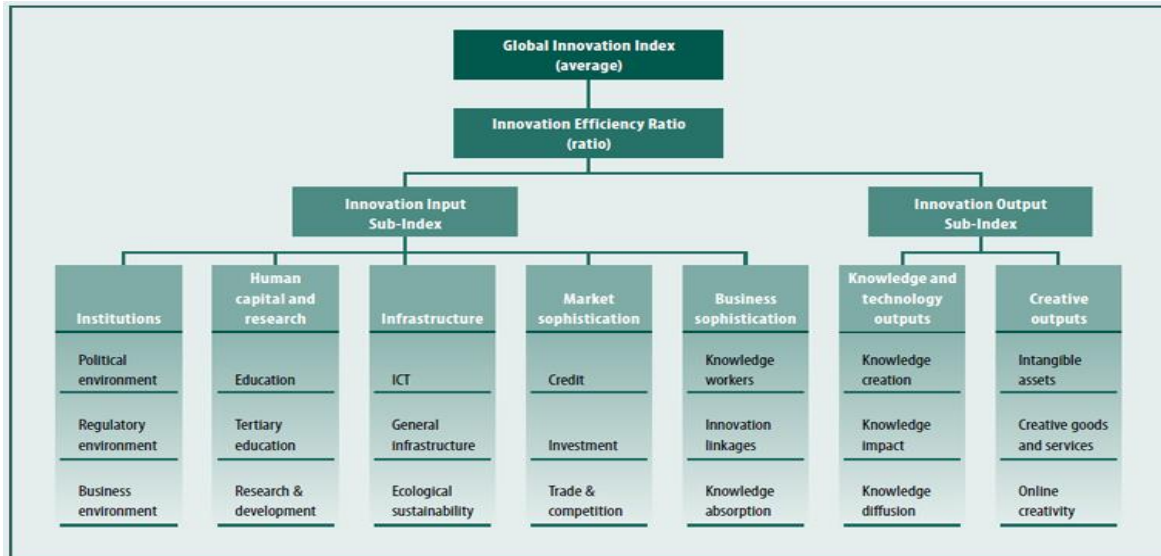
- 3.1 For the GII 2014, Switzerland remains the leader for the fourth consecutive year. The United Kingdom moves up a rank to second place, followed by Sweden. A new entry into the top 10 this year is Luxembourg (9th). These GII leaders have created well-linked innovation ecosystems, where investments in human capital combined with strong innovation infrastructures contribute to high levels of creativity.
- 3.2 In particular, the top 25 countries in the GII consistently score high in most indicators and have strengths in areas such as innovation infrastructure, including information and communication technologies; business sophistication such as knowledge workers, innovation linkages, and knowledge absorption; and innovation outputs such as creative goods and services and online creativity.
- 3.3 Among the BRICS (Brazil, Russia, India, China, and South Africa), four improved their positions (Brazil by 3 places to reach the 61<sup>st</sup> rank, the Russian Federation by 13 places to reach 49<sup>th</sup>, and China by 6 places to reach 29<sup>th</sup>, and South Africa by 5 places to reach 53<sup>rd</sup>). The progress of China and the Russian Federation in the rankings is among the most notable of all countries; China's ranking is now comparable to that of many high-income economies. India, however slips 10 places to 76<sup>th</sup> position this year.
- 3.4 The GII shows that better educated citizens are more successful in higher-income economies leveraging on the favorable context for driving innovation. As countries move up the scale of innovation sophistication, the quality of its talents in science, engineering, but also in business and management for example become even more critical.

## 4. METHODOLOGY

- 4.1. The GII relies on seven pillars. Each pillar is divided into three sub-pillars. Each sub-pillar is composed of three to six individual indicators. Each sub-pillar score is calculated as the weighted average of its individual indicators. Each pillar score is calculated as the weighted average of its sub-pillar scores.
- 4.2. The GII includes three indices and one ratio:
  - i. The Innovation Input Sub-Index is the simple average of the first five pillars scores; **(1) Institutions, (2) Human capital and research, (3) Infrastructure, (4) Market sophistication, and (5) Business sophistication.**
  - ii. The Innovation Output Sub-Index is the simple average of the last two pillars scores; **(6) Knowledge and Technology outputs and (7) Creative outputs.**
  - iii. The Global Innovation Index is the simple average of the Input and Output Sub-Indices.
  - iv. The Innovation Efficiency Ratio is the ratio of the Output Sub- Index over the Input Sub-Index.
- 4.3. These pillars are divided into 21 sub-pillars, including a total of 81 indicators which fall within the following three categories:
  - i. Quantitative/objective/hard data (56 indicators),
  - ii. Composite indicators/index data (20 indicators), and
  - iii. Survey/qualitative/subjective/soft data (5 indicators).

4.4. The GII framework is depicted in Figure 1.

**Figure1: The GII Framework**





# Malaysia

## Key Indicators

Population (millions)	29.2
GDP (US\$ billions)	312.4
GDP per capita, PPP\$	17,748.0
Income group	Upper-middle income
Region	South East Asia and Oceania

	Score (0–100) or value (hard data)	Rank
<b>Global Innovation Index (out of 143)</b>	<b>45.6</b>	<b>33</b>
Innovation Output Sub-Index	38.7	35
Innovation Input Sub-Index	52.5	30
Innovation Efficiency Ratio	0.7	72
Global Innovation Index 2013 (out of 142)	46.9	32

<b>1</b>	<b>Institutions</b>	<b>68.2</b>	<b>50</b>
1.1	Political environment	63.6	52
1.1.1	Political stability*	65.6	72
1.1.2	Government effectiveness*	67.8	32
1.1.3	Press freedom*	57.3	119 ○
1.2	Regulatory environment	64.9	77
1.2.1	Regulatory quality*	63.1	46
1.2.2	Rule of law*	60.3	44
1.2.3	Cost of redundancy dismissal, salary weeks	23.9	110 ○
1.3	Business environment	76.2	25
1.3.1	Ease of starting a business*	94.3	15
1.3.2	Ease of resolving insolvency*	51.8	37
1.3.3	Ease of paying taxes*	82.4	28
<b>2</b>	<b>Human capital &amp; research</b>	<b>41.6</b>	<b>35</b>
2.1	Education	42.2	72
2.1.1	Expenditure on education, % GDP	5.9	29
2.1.2	Gov't expenditure/pupil, secondary, % GDP/cap	19.9	60
2.1.3	School life expectancy, years	12.7	76
2.1.4	PISA scales in reading, maths, & science	412.7	51 ○
2.1.5	Pupil-teacher ratio, secondary	13.6	46
2.2	Tertiary education	51.4	21
2.2.1	Tertiary enrolment, % gross	36.0	70
2.2.2	Graduates in science & engineering, %	37.7	6 ●
2.2.3	Tertiary inbound mobility, %	6.1	28
2.3	Research & development (R&D)	31.1	32
2.3.1	Researchers, headcounts/mn pop.	2,564.5	35
2.3.2	Gross expenditure on R&D, % GDP	1.1	34
2.3.3	QS university ranking, average score top 3*	45.2	28
<b>3</b>	<b>Infrastructure</b>	<b>45.7</b>	<b>35</b>
3.1	Information & communication technologies (ICTs)	55.3	35
3.1.1	ICT access*	60.9	51
3.1.2	ICT use*	31.1	59
3.1.3	Government's online service*	79.1	20
3.1.4	E-participation*	50.0	31
3.2	General infrastructure	43.3	31
3.2.1	Electricity output, kWh/cap	4,507.6	47
3.2.2	Logistics performance*	74.6	28
3.2.3	Gross capital formation, % GDP	27.1	34
3.3	Ecological sustainability	38.5	59
3.3.1	GDP/unit of energy use, 2005 PPP\$/kg oil eq	5.4	77 ○
3.3.2	Environmental performance*	59.3	49
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	3.9	28
<b>4</b>	<b>Market sophistication</b>	<b>63.9</b>	<b>17</b>
4.1	Credit	46.6	41
4.1.1	Ease of getting credit*	100.0	1 ●
4.1.2	Domestic credit to private sector, % GDP	118.2	25
4.1.3	Microfinance gross loans, % GDP	0.1	66 ○

4.2	Investment	62.9	15
4.2.1	Ease of protecting investors*	86.7	4 ●
4.2.2	Market capitalization, % GDP	156.9	4 ●
4.2.3	Total value of stocks traded, % GDP	41.0	21
4.2.4	Venture capital deals/tr PPP\$ GDP	0.0	35
4.3	Trade & competition	82.4	12 ●
4.3.1	Applied tariff rate, weighted mean, %	4.0	71
4.3.2	Non-agricultural mkt access weighted tariff, %	0.4	48
4.3.3	Intensity of local competition†	74.0	29
<b>5</b>	<b>Business sophistication</b>	<b>42.9</b>	<b>29</b>
5.1	Knowledge workers	48.1	44
5.1.1	Knowledge-intensive employment, %	27.5	50
5.1.2	Firms offering formal training, % firms	50.1	27
5.1.3	GERD performed by business, % GDP	0.6	31
5.1.4	GERD financed by business, %	56.7	27
5.1.5	GMAT test takers/mn pop. 20–34	45.9	78
5.2	Innovation linkages	33.8	62
5.2.1	University/industry research collaboration†	67.0	15
5.2.2	State of cluster development†	67.3	13
5.2.3	GERD financed by abroad, %	0.3	90 ○
5.2.4	JV-strategic alliance deals/tr PPP\$ GDP	0.1	29
5.2.5	Patent families filed in 3+ offices/bn PPP\$ GDP	0.0	68
5.3	Knowledge absorption	46.8	6 ●
5.3.1	Royalty & license fees payments, % total trade	0.6	47
5.3.2	High-tech imports less re-imports, %	22.1	1 ●
5.3.3	Comm., computer & info. services imp., % total trade	1.1	56
5.3.4	FDI net inflows, % GDP	4.2	51
<b>6</b>	<b>Knowledge &amp; technology outputs</b>	<b>35.5</b>	<b>39</b>
6.1	Knowledge creation	11.5	72
6.1.1	Domestic resident patent app./tr PPP\$ GDP	2.3	50
6.1.2	PCT resident patent app./tr PPP\$ GDP	0.6	35
6.1.3	Domestic res utility model app./tr PPP\$ GDP	0.1	58 ○
6.1.4	Scientific & technical articles/bn PPP\$ GDP	16.9	53
6.1.5	Citable documents H index	125.0	52
6.2	Knowledge impact	48.9	31
6.2.1	Growth rate of PPP\$ GDP/worker, %	2.6	42
6.2.2	New businesses/th pop. 15–64	2.3	40
6.2.3	Computer software spending, % GDP	0.4	23
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	23.7	18
6.2.5	High- & medium-high-tech manufactures, %	41.0	19
6.3	Knowledge diffusion	46.0	19
6.3.1	Royalty & license fees receipts, % total trade	0.1	65
6.3.2	High-tech exports less re-exports, %	26.9	2 ●
6.3.3	Comm., computer & info. services exp., % total trade	1.1	80
6.3.4	FDI net outflows, % GDP	5.5	11 ●
<b>7</b>	<b>Creative outputs</b>	<b>42.0</b>	<b>39</b>
7.1	Intangible assets	51.8	32
7.1.1	Domestic res trademark app./bn PPP\$ GDP	28.2	75 ○
7.1.2	Madrid trademark app. holders/bn PPP\$ GDP	n/a	n/a
7.1.3	ICTs & business model creation†	73.7	11 ●
7.1.4	ICTs & organizational model creation†	70.8	11 ●
7.2	Creative goods & services	36.0	25
7.2.1	Cultural & creative services exports, % total trade	0.4	26
7.2.2	National feature films/mn pop. 15–69	2.4	52
7.2.3	Global ent. & media output/th pop. 15–69	0.4	33
7.2.4	Printing & publishing manufactures, %	0.0	76 ○
7.2.5	Creative goods exports, % total trade	10.6	4 ●
7.3	Online creativity	28.5	52
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	6.1	57
7.3.2	Country-code TLDs/th pop. 15–69	31.2	54
7.3.3	Wikipedia edits/pop. 15–69	4,707.5	57
7.3.4	Video uploads on YouTube/pop. 15–69	68.6	45 ○

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Overall Global Innovation Index Rankings

## Appendix 2

Country/Economy	Score (0–100)	Rank
Switzerland	64.78	1
United Kingdom	62.37	2
Sweden	62.29	3
Finland	60.67	4
Netherlands	60.59	5
United States of America	60.09	6
Singapore	59.24	7
Denmark	57.52	8
Luxembourg	56.86	9
Hong Kong (China)	56.82	10
Ireland	56.67	11
Canada	56.13	12
Germany	56.02	13
Norway	55.59	14
Israel	55.46	15
Korea, Republic of	55.27	16
Australia	55.01	17
New Zealand	54.52	18
Iceland	54.05	19
Austria	53.41	20
Japan	52.41	21
France	52.18	22
Belgium	51.69	23
Estonia	51.54	24
Malta	50.44	25
Czech Republic	50.22	26
Spain	49.27	27
Slovenia	47.23	28
China	46.57	29
Cyprus	45.82	30
Italy	45.65	31
Portugal	45.63	32
Malaysia	45.60	33
Latvia	44.81	34
Hungary	44.61	35
United Arab Emirates	43.25	36
Slovakia	41.89	37
Saudi Arabia	41.61	38
Lithuania	41.00	39
Mauritius	40.94	40
Barbados	40.78	41
Croatia	40.75	42
Moldova, Republic of	40.74	43
Bulgaria	40.74	44
Poland	40.64	45
Chile	40.64	46
Qatar	40.31	47
Thailand	39.28	48
Russian Federation	39.14	49
Greece	38.95	50
Seychelles	38.56	51
Panama	38.30	52
South Africa	38.25	53
Turkey	38.20	54
Romania	38.08	55
Mongolia	37.52	56
Costa Rica	37.30	57
Belarus	37.10	58
Montenegro	37.01	59
TFYR of Macedonia	36.93	60
Brazil	36.29	61
Bahrain	36.26	62
Ukraine	36.26	63
Jordan	36.21	64
Armenia	36.06	65
Mexico	36.02	66
Serbia	35.89	67
Colombia	35.50	68
Kuwait	35.19	69
Argentina	35.13	70
Viet Nam	34.89	71
Uruguay	34.76	72

Country/Economy	Score (0–100)	Rank
Peru	34.73	73
Georgia	34.53	74
Oman	33.87	75
India	33.70	76
Lebanon	33.60	77
Tunisia	32.94	78
Kazakhstan	32.75	79
Guyana	32.48	80
Bosnia and Herzegovina	32.43	81
Jamaica	32.41	82
Dominican Republic	32.29	83
Morocco	32.24	84
Kenya	31.85	85
Bhutan	31.83	86
Indonesia	31.81	87
Brunei Darussalam	31.67	88
Paraguay	31.59	89
Trinidad and Tobago	31.56	90
Uganda	31.14	91
Botswana	30.87	92
Guatemala	30.75	93
Albania	30.47	94
Fiji	30.39	95
Ghana	30.26	96
Cabo Verde	30.09	97
Senegal	30.06	98
Egypt	30.03	99
Philippines	29.87	100
Azerbaijan	29.60	101
Rwanda	29.31	102
El Salvador	29.08	103
Gambia	29.03	104
Sri Lanka	28.98	105
Cambodia	28.66	106
Mozambique	28.52	107
Namibia	28.47	108
Burkina Faso	28.18	109
Nigeria	27.79	110
Bolivia, Plurinational State of	27.76	111
Kyrgyzstan	27.75	112
Malawi	27.61	113
Cameroon	27.52	114
Ecuador	27.50	115
Côte d'Ivoire	27.02	116
Lesotho	27.01	117
Honduras	26.73	118
Mali	26.18	119
Iran, Islamic Republic of	26.14	120
Zambia	25.76	121
Venezuela, Bolivarian Republic of	25.66	122
Tanzania, United Republic of	25.60	123
Madagascar	25.50	124
Nicaragua	25.47	125
Ethiopia	25.36	126
Swaziland	25.33	127
Uzbekistan	25.20	128
Bangladesh	24.35	129
Zimbabwe	24.31	130
Niger	24.27	131
Benin	24.21	132
Algeria	24.20	133
Pakistan	24.00	134
Angola	23.82	135
Nepal	23.79	136
Tajikistan	23.73	137
Burundi	22.43	138
Guinea	20.25	139
Myanmar	19.64	140
Yemen	19.53	141
Togo	17.65	142
Sudan	12.66	143